

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Previously Amended) A method of screening a DNA construct library for a single chain monoclonal antibody fusion reagent capable of binding a transcription associated biomolecule within a host cell, comprising:

(a) cloning a first nucleic acid fragment that codes for a DNA-binding domain peptide of a transcription activator into a first expression vector to yield a construct (1), wherein said DNA-binding domain peptide binds to a DNA regulatory sequence binding site;

(b) fusing a second nucleic acid fragment into said construct (1), in the same translation reading frame as said first nucleic acid fragment, to yield said first expression vector containing a construct (2) that encodes a chimeric DNA-binding domain/transcription associated biomolecule, wherein said second nucleic acid fragment codes for an antigenic portion of said transcription associated biomolecule that is sufficient to generate antibody capable of binding to said transcription associated biomolecule;

(c) providing said host cell containing a detectable gene that is under the transcriptional control of the DNA regulatory sequence binding site for said DNA-binding domain peptide;

(d) cloning a third nucleic acid fragment that codes for a single chain antibody into a second expression vector to yield a construct (3), wherein said single chain antibody is expressed in a bio-active form that may bind to said antigenic portion;

(e) fusing a fourth nucleic acid fragment that codes for a trans-activation peptide into said construct (3), in the same translation reading frame as the third nucleic acid fragment to yield said second expression vector containing a construct (4), encoding a chimeric single chain antibody/trans-activation peptide that may bind to said antigenic portion;

(f) introducing said first and second expression vectors into said host, such that both vectors are expressed; and

(g) monitoring the expression of said detectable gene, whereby detecting said expression indicates that said fusion reagent does bind said antigenic portion within said host cell upon detection of said expression.

2. (Previously Amended) The method according to claim 1, further comprising fusing at least one nucleic acid fragment, that codes for an intracellular targeting signal peptide, into said construct (4), in the same translation reading frame as said third nucleic acid fragment to yield a construct (5), wherein said intracellular targeting signal peptide directs the expression of said single chain antibody to a cellular compartment.

3. (Previously Amended) The method according to claim 2, wherein said trans-activation peptide in said construct 5 is deleted to yield a construct (6).

4. (Currently Amended) The method according to claim 2, wherein said transcription associated biomolecule is selected from the group consisting essentially of a transcription factor, ligand, hormone, nuclear hormone receptor, DNA binding domain of a nuclear hormone receptor, tumor associated protein, protein kinase, protein phosphatase, GTP binding protein, adaptor protein, secondary messenger of an intracellular signaling molecule, and a protein derived from an etiological agent.

5. (Previously Amended) The method according to claim 4, wherein said transcription associated biomolecule is selected from the group consisting of Ras, Grb2, phospholipase C γ , phosphatidylinositol 3-kinase, Syp, mitogen activated protein kinase, Jun kinase, androgen receptor, thyroid hormone receptor, glucocorticoid receptor, ATF-1, ATF-2, ATF-3, ATF-4, ATF-6, CREB and CREM.

6. (Currently Amended) The method according to claim 3, wherein said transcription associated biomolecule is selected from the group consisting essentially of a transcription factor, ligand, hormone, nuclear hormone receptor, DNA binding domain of a nuclear hormone receptor, tumor associated protein, protein kinase, protein phosphatase, GTP binding protein, adaptor protein, secondary messenger of an intracellular signaling molecule, and a protein derived from an etiological agent.

7. (Previously Amended) The method according to claim 6, wherein said transcription associated biomolecule is selected from the group consisting of Ras, Grb2,

phospholipase C γ , phosphatidylinositol 3-kinase, Syp, mitogen activated protein kinase, Jun kinase, androgen receptor, thyroid hormone receptor, glucocorticoid receptor, ATF-1, ATF-2, ATF-3, ATF-4, ATF-6, CREB and CREM.

8. (Canceled)
9. (Withdrawn)
10. (Withdrawn)
11. (Withdrawn)
12. (Withdrawn)
13. (Withdrawn)
14. (Withdrawn)
15. (Withdrawn)
16. (Withdrawn)
17. (Withdrawn)
18. (Withdrawn)

19. (Previously Amended) A pVP16Zeo library expression vector, accorded as ATCC Accession No. 98483, for the construction and screening of a single chain monoclonal antibody fusion reagent, comprising a zeocin selective marker gene to facilitate the isolation and production of said single chain monoclonal antibody fusion reagent in yeast and *E. coli*.

20. (Previously Amended) A kit for screening a DNA construct library for a single chain monoclonal antibody fusion reagent within a host cell, comprising:

(a) a first expression vector comprised of (i) a first nucleic acid fragment that codes for a DNA binding domain peptide of a transcription activator that binds a DNA regulatory sequence binding site, and (ii) a second nucleic acid fragment that codes for an antigenic portion of a transcription associated biomolecule, wherein said first and said second

fragments are in the same translation reading frame, whereby said first expression vector encodes a chimeric DNA-binding domain/transcriptional associated biomolecule;

(b) a second expression vector that comprises (i) a third nucleic acid fragment from said DNA construct library that codes for a single chain antibody that is expressed in a bio-active form that may bind to said antigenic portion, and (ii) a fourth nucleic acid fragment that codes for a trans-activation peptide, wherein said third and fourth fragments are in the same translation reading frame, whereby said second expression vector encodes a chimeric single chain antibody/trans-activation peptide that may bind to said antigenic portion;

(c) said host cell containing a detectable gene that is under the transcriptional control of the DNA regulatory sequence binding site for the DNA-binding domain peptide, for introducing said first and second expression vectors such that both vectors are expressed;

(d) means for monitoring the expression of said detectable gene, whereby detecting said expression indicates that said fusion reagent does bind said antigen present in said host cell.

21. (Previously Amended) A kit according to claim 20, further comprises a pVP16Zeo vector, wherein said vector expresses said single chain antibody and is accorded as ATCC Accession No. 98483.

22. (Currently Amended) A kit according to claim 21, further **comprises at least one set of** primers, ~~wherein said primers are selected from the group consisting of SEQ ID NOS:3—86.~~

23. (Canceled)

24. (Previously Added) A DNA construct according to the method of claim 1.

25. (Previously Added) A screening method, comprising:

(a) providing a first expression vector comprised of (i) a first nucleic acid segment that codes for a DNA-binding domain peptide of a transcription activator, wherein said peptide binds a DNA regulatory sequence binding site, and (ii) a second nucleic acid segment that codes for an antigenic portion of said transcription associated biomolecule that is

sufficient to generate antibody capable of binding to said transcription associated biomolecule and that is not endogenous to said host cell, wherein said first segment and said second segment are in the same translation reading frame, whereby said first expression vector encodes a chimeric biomolecule;

(b) providing a plurality of host cells containing a detectable gene that is under the transcriptional control of the DNA regulatory sequence binding site for said DNA-binding domain peptide;

(c) providing a second expression vector that comprises (i) a third nucleic acid segment that codes for a single chain antibody that may bind said antigenic portion within said host cell and, (ii) a fourth nucleic acid segment that codes for a trans-activation peptide, wherein said third and fourth segments are in the same translation reading frame, whereby said second expression vector encodes a chimeric peptide that binds said antigenic portion;

(d) introducing said first and second expression vectors into at least some host cells of said plurality, such that both vectors are expressed within said host cells; and

(e) monitoring said plurality for expression of said detectable gene, whereby detecting said expression indicates that said fusion reagent does bind said antigenic portion within said host cell upon detection of said expression.

26. (Previously Added) The method according to claim 1, wherein said antigenic portion is not endogenous to said host cell.

27. (Previously Added) The method according to claim 1, wherein said host cell is a eucaryotic cell.

28. (Previously Added) The method according to claim 27, wherein said eucaryotic cell is a yeast or mammalian cell.

29. (Previously Added) The method according to claim 1, wherein said detectable gene is a reporter gene or a selectable marker gene.

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46. (Previously Added) The kit according to claim 20, wherein said antigenic portion is not endogenous to said host cell.

47. (Previously Added) The kit according to claim 20, wherein said host cell is a eucaryotic cell.

48. (Previously Added) The kit according to claim 47, wherein said eucaryotic cell is a yeast or mammalian cell.

49. (Previously Added) The kit according to claim 20, wherein said detectable gene is a reporter gene or a selectable marker gene.

50. (Previously Added) The screening method according to claim 24, wherein said antigenic portion is not endogenous to said host cell.

51. (Previously Added) The screening method according to claim 24, wherein said host cell is a eucaryotic cell.

52. (Previously Added) The screening method according to claim 51, wherein said eucaryotic cell is a yeast or mammalian cell.

53. (Previously Added) The screening method according to claim 24, wherein said detectable gene is a reporter gene or a selectable marker gene.